UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,125	12/31/2001	Ramkrishna Prakash	200304386-1	1059

22879   7590   01/03/2006

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EXAMINER
NGUYEN, HAI V

ART UNIT	PAPER NUMBER
2142	

DATE MAILED: 01/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/039,125	PRAKASH ET AL.
	Examiner	Art Unit	
	Hai V. Nguyen	2142	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 December 2005*.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5,7-17,19 and 22-31* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,7-17,19 and 22-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This Office Action is in response to the communication received on 13 December

2005.

Continued Examination Under 37 CFR 1.114

2.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 13

December 2005 has been entered.

3.   Claims 4, 6, 18, and 20-21 are cancelled.

4.   Claims 1-3, 5, 7-17, 19, and 22-31 are presented for examination.

Specification

5.   The textual portion of the specification is replete with grammatical and idiomatic

errors too numerous to mention specifically. The specification should be revised

carefully.

6.   The applicant should use this period for response to thoroughly and very closely

proof read and review the whole of the application for correct correlation between

reference numerals in the textual portion of the Specification and Drawings along with

any minor spelling errors, general typographical errors, accuracy, assurance of proper

use for Trademarks ™, and other legal symbols ®, where required, and clarity of

meaning in the Specification, Drawings, and specifically the claims (i.e., provide proper

antecedent basis for "the" and "said" within each claim). Minor typographical errors

could render a Patent unenforceable and so the applicant is strongly encouraged to aid

in this endeavor.

Claim Rejections - 35 USC § 112

7.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8.   Claims 1-12, 29-30 are rejected under 35 U.S.C. 112, first paragraph, because

the specification, while being enabling for *using a router node to connect a LAN to a*

server cluster arranged in a System Area Network (SAN). The router node is capable of

distributing the LAN based traffic among the SAN server nodes (see Applicant's

Abstract, page 1, paragraph [0009]), does not reasonably provide enablement for *at*

least first and second router nodes bridging the plurality of cluster nodes to a LAN,

wherein the router nodes are connected to the plurality of cluster nodes via the SAN

according to the SAN-based protocol in claims 1-12, 29-30. The specification does not

enable any person skilled in the art to which it pertains, or with which it is most nearly

connected, to make and use the invention commensurate in scope with these claims.

In the entire Applicant's specification, it clearly describes in Fig. 4 that using a router

node to connect a LAN to a server cluster arranged in a System Area Network (SAN).

The router node is capable of distributing the LAN based traffic among the SAN server

nodes. The router node is positioned as a bridge to connect between the LAN client and

the SAN server nodes cluster and to convert the protocols between the LAN and SAN

and vice-versa. Moreover, the claim 7 claims the second router node takes over the first

failed router node which is not enabled in the specification how to do it.

Claim Rejections - 35 USC § 102

9.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(e)

that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the

Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a

U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore,

the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-

AIPA 35 U.S.C. 102(e)).

10.   Claims 1-3, 5, 8-19, 22-27, and 29-31 are rejected under 35 U.S.C. 102(e) as

being anticipated by **Hu** et al. U.S patent # **6,535,518 B1.**

11.   As to claim 1, Hu discloses a server network comprising: a plurality of cluster

nodes connected via a SAN according a SAN-based protocol *(Hu, various physical*

interfaces like multiple network interface or storage interfaces or multiple servers, col. 8,

lines 8-17); and at least first and second router nodes *(Hu, Fig. 8, items 130, 110; Fig.*

9, items 220, 250) bridging the plurality of cluster nodes *(Hu, Fig. 8, items SAN 110 or*

SAN 121) to a LAN *(Fig. 8, network item 130) (Fig. 9, col. 7, line 15 – col. 8, line 25,*

decoding/control/routing block (CU) 205 in the router bridging SAN interface and LAN

interface).

12.   As to claim 2, Hu discloses, wherein the router node is connected to the LAN via
a LAN-based protocol *(Figs. 1, 9, item 220)*.

13.   As to claim 3, Hu discloses, wherein the LAN-based protocol is TCP/IP *(Figs. 1,
8-9)*.

14.   As to claim 5, Hu discloses, wherein the SAN-based protocol is one of
INFINIBAND, Next Generation I/O (NGIO), and Future I/O (FIO) *(Fig. 1; col. 8, lines 8-
17)*.

15.   As to claim 8, Hu discloses, wherein the first and second router nodes bridges to
the plurality of cluster nodes in parallel *(DeKoning, col. 5, line 45 - col. 6, line 3; col. 7,
lines 25-44)*.

16.   As to claim 9, Hu discloses, wherein each router node comprises a session
management agent for maintaining session information for sessions between the router
node and a cluster node of the plurality of cluster nodes *(Hu, Figs. 8-10, the router
keeps a routing table, switching status, and history and contain statistics, and controls
the path traversed by the packets. The content in the routing table is provided by the
server, based on storage controller (or SAN interface) and/or decoded packet
information, cols. 7-8)*.

17.   As to claim 10, Hu discloses, wherein each router node comprises a policy
management agent for maintaining connection information and routing policies for the
plurality of cluster nodes *(Hu, Figs. 8-10, the router keeps a routing table, switching
status, and history and contain statistics, and controls the path traversed by the*

packets. The content in the routing table is provided by the server, based on storage

controller (or SAN interface) and/or decoded packet information, cols. 7-8).

18.   As to claim 11, Hu discloses, wherein each router node comprises a routing

agent for maintaining connection information for the plurality of cluster nodes *(Hu, Figs.*

8-10, the router keeps a routing table, switching status, and history and contain

statistics, and controls the path traversed by the packets. The content in the routing

table is provided by the server, based on storage controller (or SAN interface) and/or

decoded packet information, cols. 7-8).

19.   As to claim 12, Hu discloses, wherein each router node comprises a filter agent

for bi-directional conversion between the SAN based protocol and a LAN based protocol

(Hu, Figs. 8-10, the router keeps a routing table, switching status, and history and

certain statistics, and controls the path traversed by the packets. The content in the

routing table is provided by the server, based on storage controller (or SAN interface)

and/or decoded packet information, cols. 7-8; the device is bi-directional, col. 9, lines

25-46)).

20.   As to claim 13, Hu discloses, a server network comprising: a plurality of cluster

nodes connected via a SAN according a SAN-based protocol *(Hu, various physical*

interfaces like multiple network interfaces or storage interfaces or multiple servers, col.

8, lines 8-17); and at least one router node *(Hu, Fig. 9, items 211, 215)* bridging the

plurality of cluster nodes *(Hu, Fig. 8, items SAN 110 or SAN 121)* to a LAN *(Fig. 8, item*

130) (Fig. 9, col. 7, line 15 – col. 8, line 25, decoding/ control/ routing block (CU) 205 in

the router bridging SAN interface and LAN interface), wherein at least one cluster node

comprises a management node *(Figs. 1, 8, 9, server 120; the server manages, sets the routing tables and acts as supervisor, col. 7, lines 1-55, col. 9, lines 56-63)* for setting routing policies *(Hu, routing settings)* on the router node.

21.   As to claim 14, Hu discloses, wherein the management node comprises a monitoring agent for obtaining statistics from the router node *(Hu, Figs. 8-10, the router keeps a routing table, switching status, and history and contain statistics, and controls the path traversed by the packets. The content in the routing table is provided by the server, based on storage controller (or SAN interface) and/or decoded packet information, cols. 7-8).*

22.   As to claim 15, Hu discloses, wherein a cluster node of the plurality of cluster nodes comprises a session management agent for holding session information *(Hu, Figs. 8-10, the router keeps a routing table, switching status, and history and contain statistics, and controls the path traversed by the packets. The content in the routing table is provided by the server, based on storage controller (or SAN interface) and/or decoded packet information, cols. 7-8).*

23.   As to claim 16, Hu discloses, wherein a cluster node comprises a policy management agent for maintaining routing policies for the plurality of cluster nodes *(Hu, QoS requirements and measurements, the server maintains the routing settings, col. 7, lines 3-55).*

24.   As to claim 17, Hu discloses a method of bridging a remote LAN client and plural SAN cluster nodes, comprising the steps of:

receiving a request to establish a connection from the remote LAN client *(Hu, Fig. 10, col. 5, line 26 – col. 6, line 58; col. 8, lines 26 – col. 9, line 24)*;

in response to the received request, accessing information that maps service types *(Hu, types of traffic like HTTP, PTP, RTP and etc., col. 5, line 26 – col. 6, line 58; col. 10, lines 59-65)* to respective SAN cluster nodes *(Hu, Fig. 10, col. 8, lines 26 – col. 9, line 24)*;

based on a service type specified by the received request and based on accessing the information, selecting one of the plurality SAN cluster nodes *(Hu, Fig. 10, col. 5, line 26 – col. 6, line 58; col. 8, lines 26 – col. 9, line 24)*;

receiving a LAN protocol communication from the remote LAN client *(Hu, Figs. 8-9, Network interface 220 receiving incoming packets; col. 5, line 26 – col. 6, line 58; col. 8, lines 26 – col. 9, line 24)*;

transforming the LAN protocol communication into a SAN protocol communication *(Hu, Figs. 8-10, Conversion 221 and Switching 201, Fig. 10, Switching 303, converting the incoming packet protocol into SAN Interface 250, col. 8, lines 26 – col. 9, line 46)*; and

sending the SAN protocol communication to the selected one of the SAN cluster nodes *(Hu, Figs. 8-9, then Conversion 221 and Switching 201, Fig. 10, Switching 303, sending the incoming packet to SAN Interface 250, col. 8, line 26 – col. 9, line 24; col. 10, lines 30-67)*.

25.   As to claim 19, Hu discloses, maintaining statistical information for the SAN

cluster node *(Hu, Fig. 10; the router keeps a routing table, switching status, and history*

and certain statistics, and control the path traversed by the packets (col. 7, lines 2-55)).

26.   As to claim 22, Hu discloses a router comprising:

        a session management agent to maintain session information for sessions with a

plurality of cluster nodes over a LAN (*Hu, the router keeps a routing table, switching*

status, and history and certain statistics, and control the path traversed by the packets

(col. 7, lines 2-55));

        a routing agent to maintain connection information for the plurality of cluster

nodes connected via a SAN according to a SAN-based protocol, wherein the connection

information maps service types to respective cluster nodes, *(Hu, Figs. 8-10, the router*

keeps a routing table, switching status, and history and contain statistics, and controls

the path traversed by the packets. The content in the routing table is provided by the

server, based on storage controller (or SAN interface) and/or decoded packet

information, cols. 7-8);

        the routing agent to receive a service request that specified a service type *(Hu,*

traffic types or nature of applications, for example, HTTP, FTP, etc., col. 5, line 26 – col.

6, line 58), and the routing agent to select one of the cluster nodes based on the

specified service type and the connection information *(Hu, the decoded header*

information (IP address, port ID, sequence number, etc.) is used as an index to the

routing table for a match. A match entry means the direct connection between network

and storage has been authorized, col. 5, lines 50-61; col. 7, line 2 – col. 8, line 67); and

a filter agent to convert between the SAN-based protocol and a LAN-based

protocol *(Hu, Figs. 8-10, 205 decoding/ control/ routing the communication protocol*

buffer 211 and through network interface 220; cols. 7-8).

27.   As to claim 23, Hu discloses, a policy management agent to maintain routing

policies *(Hu, routing settings, QoS requirements and measurements)* for the plurality of

cluster nodes *(Hu, the router keeps a routing table, switching status, and history and*

certain statistics, and control the path traversed by the packets (col. 7, lines 2-55)).

28.   As to claim 24, Hu discloses, wherein the connection information comprises a

policy table *(Hu, the decoded header information (IP address, port ID, sequence*

number, etc.) is used as an index to the routing table for match. A match entry means

the direct connection between network and storage has been authorized, col. 5, lines

26-67).

29.   As to claim 25, Hu discloses, wherein the SAN-based protocol is different from

the LAN-protocol *(Hu, the TCI/IP protocol conversion is carried out on the device (321*

and 320), col. 8, lines 30-67).

30.   As to claim 26, Hu discloses, wherein the connection information further

comprises information to indicate authentications to be performed for respective service

types *(Hu, the decoded header information (IP address, port ID, sequence number, etc.)*

is used as an index to the routing table for match. A match entry means the direct

connection between network and storage has been authorized, col. 5, lines 26-67; a

routing table match indicates an established (authorized) connection, col. 8, lines 30-

67).

31.   As to claim 27, Hu discloses, wherein the connection information further

comprises weighting factor information to indicate a proportion of service requests to be

directed to a respective cluster node for a particular service type *(Hu, traffic types (1)*

and (2) will be routed to respective network or storage interfaces (e.g., from storage to

network or vice-versa.) while (3) and (4) will be sent to server(s). The decoding process

is to look into necessary protocol (layers) and to categorize incoming traffic (from where

and for what), (col. 5, lines 40-67)).

32.   Claim 29 is similar limitations of claims 22, 25; therefore, it is rejected under the

same rationale as in claims 22, 25.

33.   As to claim 30, Hu discloses, wherein each router node stores sessions

information to route data from remote LAN-clients to the cluster nodes *(Hu, the router*

keeps a routing table, col. 7, lines 2-55).

34.   Claim 31 corresponds to the method of claim 17; therefore, it is rejected under

the same rationale as in claim 17.

Claim Rejections - 35 USC § 103

35.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

36.   Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Hu** as

applied to claims 1-4 above, and further in view of **DeKoning** U.S patent #: **6,757,753**

B1.

37.   As to claim 7 Hu does not explicitly disclose wherein the second router node

bridges to the plurality of cluster nodes after the first router fails-over to the second

router node.

In the same field of endeavor, DeKoning, related Uniform Routing Of

Storage Request Through Redundant Array Controllers, discloses (e.g. network

resource backup) that *the RAID storage devices 134 may interact with other storage-*

related devices and systems, such as a backup system 156 and a remote data facility

158 which maintains a copy of the data from some or all of the logical volumes 122

(DeKoning, col. 5, line 45 - col. 6, line 3; col. 7, lines 25-44).

Accordingly, it would have been obvious to one of ordinary skill in the networking

art at the time the invention was made to have incorporated DeKoning's teachings of a

second system (DeKoning, Abstract, *col. 5, line 45 - col. 6, line 3; col. 7, lines 25-44)*

with the teachings of Hu, for the *purpose of preventing the catastrophic failure of the*

data storage system and maintaining a mirror copy of the data (DeKoning, col. 5, line 45

- col. 6, line 3; col. 7, lines 25-44).

Claim Rejections - 35 USC § 103

38.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

39.   Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hu-

DeKoning as applied to claims 1-4 above, and further in view of Dobberpuhl et al. U.S.

patent # 6,754,718 B1.

40.   As to claim 28, Hu-DeKoning does not explicitly disclose, wherein the cluster

nodes connected via the SAN are viewed by a remote client as being assigned a single

IP address. It would have been obvious to one of ordinary skill in the networking art to

conclude that remotely viewing the SAN nodes connection from a remote client

assigned a single IP address is well-known in the networking art, as evidenced in

Figures 1, 3, item 130, col. 3, lines 15-29, in Dobberpuhl et al.

Claim Rejections - 35 USC § 103

41.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

42.   Claims 1-3, 5, 7-17, 19, and 22-31 are rejected under 35 U.S.C. 102(e) as

anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **Sotis** U.S.

patent application publication # **US 2002/0083120 A1.**

43.   As to claim 17, Sotis, Storage Area Network File System, teaches substantially

the invention as claimed (e.g., as in exemplary claim 17), including a method of bridging

a remote LAN client and plurality SAN cluster nodes comprises the steps of:

receiving a request to establish a connection from the remote LAN client (Sotis,

Abstract, Fig. 3, page 4, paragraphs [0053]-[0054]; page 5, paragraphs [0063]-[0070]);

in response to the received request, accessing information that maps service

types to respective SAN cluster nodes *(Sotis, Abstract, Fig. 3, page 4, paragraphs*

[0053]-[0054]; page 5, paragraphs [0063]-[0070]);

based on a service type specified by the received request and based on

accessing the information, selecting one of the plurality SAN cluster nodes *(Sotis,*

Abstract, Fig. 3, page 4, paragraphs [0053]-[0054]; page 5, paragraphs [0063]-[0070]);

receiving a LAN protocol communication from the remote LAN client *(Sotis,*

Abstract, Fig. 3, page 4, paragraphs [0053]-[0054]; page 5, paragraphs [0063]-[0070]);

transforming the LAN protocol communication into a SAN protocol

communication *(Sotis, Abstract, Fig. 3, page 4, paragraphs [0053]-[0054]; page 5,*

paragraphs [0063]-[0070]); and

sending the SAN protocol communication to the selected one of the SAN cluster

nodes *(Sotis, Abstract, Fig. 3, page 4, paragraphs [0053]-[0054]; page 5, paragraphs*

[0063]-[0070]).

It would have been obvious to one of ordinary skill in the networking art at the time of

the invention was made that the claimed invention differed from the teachings of Sotis

only by a degree, e.g., in the claimed second attribute information. But this is no more

that a difference in a degree because the router nodes whether designated as a first

router node and a second router node or just as router node as taught by Sotis, it

provides the conversion of the protocols for data flow. The heart of the claimed

invention is providing the protocol conversion within a network device between the LAN

and SAN environment *(see Applicant's Summary)*. Sotis invention exactly was directed

to the same purpose, e.g., to describe in Fig. 3 that the protocol conversion within a

network device between the LAN and SAN environment. Other claimed elements of the

dependent claims are all obvious variation of the well-known features of the protocol

conversion and rejected accordingly.

Claim Rejections - 35 USC § 103

44.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

45.   Claims 1-3, 5, 7-17, 19, and 22-31 are rejected under 35 U.S.C. 102(e) as

anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **Latif** U.S.

patent # **6,400,730 B1.**

46.   As to claim 17, Latif, Method and Apparatus For Transferring Data Between IP

Network Devices and SCSI and Fibre Channel Devices Over an IP Network, teaches

substantially the invention as claimed (e.g., as in exemplary claim 17), including a

method of bridging a remote LAN client and plurality SAN cluster nodes comprises the

steps of:

receiving a request to establish a connection from the remote LAN client *(Latif,*

Abstract, Fig. 5, col. 2, line 15 – col. 4, line 48);

in response to the received request, accessing information that maps service

types to respective SAN cluster nodes *(Latif, Abstract, Fig. 5, col. 2, line 15 – col. 4, line*

48);

based on a service type specified by the received request and based on

accessing the information, selecting one of the plurality SAN cluster nodes *(Latif,*

Abstract, Fig. 5, col. 2, line 15 – col. 4, line 48);

receiving a LAN protocol communication from the remote LAN client *(Latif,*

Abstract, Fig. 5, col. 2, line 15 – col. 4, line 48);

transforming the LAN protocol communication into a SAN protocol

communication *(Latif, Abstract, Fig. 5, col. 2, line 15 – col. 4, line 48)*; and

sending the SAN protocol communication to the selected one of the SAN cluster

nodes *(Latif, Abstract, Fig. 5, col. 2, line 15 – col. 4, line 48)*.

It would have been obvious to one of ordinary skill in the networking art at the time of

the invention was made that the claimed invention differed from the teachings of Latif

only by a degree, e.g., in the claimed second attribute information. But this is no more

that a difference in a degree because the router nodes whether designated as a first

router node and a second router node or just as router node as taught by Latif, it

provides the conversion of the protocols for data flow. The heart of the claimed

invention is providing the protocol conversion within a network device between the LAN

and SAN environment *(see Applicant's Summary)*. Latif invention exactly was directed

to the same purpose, e.g., to describe in Fig. 5 that the protocol conversion within a

network device between the LAN and SAN environment. Other claimed elements of the

dependent claims are all obvious variation of the well-known features of the protocol

conversion and rejected accordingly.

47. Further references of interest are cited on Form PTO-892, which is an

attachment to this action.

Response to Arguments

48. Applicant's arguments filed on 13 December 2005 have been fully considered but

they are not persuasive.

49. In the remark, Applicant argued in substance that:

Point (A), the prior art do not disclose that, "the first and second router nodes

bridging SAN cluster nodes to a LAN" in claim 1.

As to point (A), Hu discloses in Fig. 9 nodes 220, 250, that these nodes bridge

the SAN network through the SAN interface 250 to the network through the network

interface 220.

Point (B), the prior art do not disclose that, "the management node for setting

routing policies on the router node" in claim 13.

As to point (B), Hi discloses that, "a management node *(Figs. 1, 8, 9, the server*

manages, sets the routing tables and acts as supervisor, col. 7, lines 1-55, col. 9, lines

56-63) for setting routing policies *(Hu, routing settings)* on the router node. *The software*

on the server will communicate with the device for all necessary setup (e.g., routing

table and file system for the storage) through the Router Control (316) and Scheduler

(315) and then pass the control to the device and notify the storage to start a response

to the request with a given file ID (or name) to fetch the data. When the response to

data in html format comes back from the storage, it will be correlated to an established

connection in the BRT (315) for proper path (314) (col. 8, lines 30-67)."

Point (C), the prior art do not disclose that, "accessing information that maps service types to respective SAN cluster nodes, and based on a service type specified by a received request and based on accessing the information, selecting one of the plural SAN cluster nodes" in claim 17.

As to point (C), Hu discloses that, *"traffic types (1) and (2) will be routed to respective network or storage interfaces (e.g., from storage to network or vice-versa) while (3) and (4) will be sent to server(s). The decoding process is to look into necessary protocol (layers) and to categorize incoming traffic (from where and for what). Then the decoded header information (IP address, port ID, sequence number, etc.) is used as an index to the routing table for a match. A match entry means the direct connection between network and storage has been authorized, col. 5, lines 40-67; col. 7, line 2 – col. 8, line 67)"*.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai V. Nguyen whose telephone number is 571-272-3901. The examiner can normally be reached on 6:00-3:30 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on 571-272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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THONG VU
Primary Examiner